In 27 February 2011
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Dear Commissioners:

This letter is in response to the FCC's, "In the Matter of Promoting More Efficient Use of Spectrum Through Dynamic Spectrum Use Technologies", Notice Of Inquiry, ET Docket No. 10-237

A pattern has emerged over the last 150 years of electronic communications. It involves the cost benefit trade-off between communications and processing. When the relative cost of processing is high compared to that of communications capacity, communications systems tend to minimize the amount of processing required by making more extensive (less efficient) use of communications capacity. When the relative cost of processing drops, communications systems tend to make more extensive use of processing to reduce the use of communications capacity (more efficient).

Over the last twenty-five years, we have seen a dramatic increase in the demand for wireless communications capacity. We are going from less than 1% of the population using interactive wireless communications less than one percent of the time at very low bandwidth per session, to 99% of the population connected 99% of the time with very large bandwidth per session. At the same time, the relative cost of processing technology has declined rapidly. Therefore, it is entirely appropriate for the FCC to explore ways of creating opportunities for the industry to apply increased processing power to increase spectral efficiency. Shared Spectrum regulatory approaches are one way of creating these opportunities and the Commission should be commended for exploring them.

Creating opportunities to deploy new technology is not always easy. It can encounter negative responses. One reason for such negative responses can be merely from the difficulty of understanding / accepting new ways of thinking. For example, one US Federal Agency had a difficult time moving from analog to digital modulation schemes. Users were accustomed to having "frequencies" and were resistant to thinking in terms of "channels" rather than frequencies. Others see Shared Spectrum not as increasing capacity for everyone, but as "someone is taking my spectrum away from me." Other concerns can include conversion expense and potential impacts on business models. Another problem area can be the chicken and egg problem of equipment availability. Equipment vendors may be concerned about investing in new equipment based on new technology without assurance that network operators will adopt it, while network operators are waiting for equipment availability before making adoption decisions. All of these can be overcome by a slow steady and consistent dialogue supported by

strong scientific data that show the true benefits of Shared Spectrum. To fulfill it's mission, the Commission needs to consult with all interested parties. This process of consultation leading to building and maintaining a broadly based dialogue on Shared Spectrum, will, over time, build a consensus. To inform this dialogue, the Commission needs to continue to support efforts within the US to build at scale wireless national test beds based on cooperation between the research community and the cellular industry. These testbeds will provide the infrastructure to allow cost effective research to produce the scientific data necessary to inform the dialogue.

Sincerely,
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